

Open Systems Pioneers

Many weapons systems programs are beginning to implement an open systems approach. The programs described below are among the early adopters of this strategy:

Joint Strike Fighter (JSF) Program

The JSF Program is using an open systems approach which will enable a common JSF production line, resulting in a highly distinct — yet affordable — aircraft for the Air Force, Navy, Marine Corps, and the Royal Navy. This strategy will permit extensive use of commercial standards, technologies, interfaces and processes in many of the C3I, electrical, and mechanical components to achieve cost savings. System life cycle support will be improved through definition of open systems software interfaces, permitting multiple suppliers of software (both commercial-off-the-shelf and new development), thereby reducing total ownership costs.

New Attack Submarine (NSSL) - Virginia Class

The NSSL Program used an open systems approach throughout the design process and sought early industry participation in developing interface profiles. Their innovative open systems approach allowed extensive use of non-developmental items and commercial standards. This strategy will enable a series of “technology refresh windows” during the six-year construction period to facilitate insertion of the latest technology before the Navy takes final delivery of the submarine.

F-15E Advanced Display Core Processor (ADCP)

This F-15E pilot program directly supports the application of commercial hardware and software technology to upgrade the F-15E Multi-Purpose Display Processor (MPDP). The ADCP is proposed to replace the MPDP and Very High Speed Integrated Circuit (VHSIC) Central Computer (VCC) to provide enhanced mission capability while eliminating a processing bottle neck and providing significant life cycle cost savings through an open systems approach. The findings and recommendations of this open systems pilot program supports the use of industrial grade parts in the new core processor, but

highlights the requirement for a disciplined qualification process that emphasizes a balanced design of performance, cost and supportability

AV-8B Open Systems Core Avionics Requirement (OSCAR)

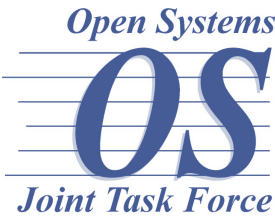
OSCAR is providing a re-engineered operational flight program (software update) and a new mission computer for the AV-8B Harrier jet. This computer is one of three versions now in production from Naval Air Systems Command PMA-209’s Advanced Mission Computer and Displays (AMC&D) program. Other Naval Aviation aircraft slated to receive mission computers from the AMC&D program are F/A-18 and T-45. The open systems design of the AMC&D allowed the computer to be scaled up to accommodate the F/A-18E/F and down to meet the requirements of OSCAR for the Harrier.

Joint Health and Usage Monitoring System (JAHUMS)

JAHUMS is an advanced concept technology demonstration (ACTD) that will prove the ability to take advantage of rapid changes in commercial diagnostic and sensor technology. It will also provide the means to maintain a level of commonality across diverse rotary wing fleets. The baseline HUMS provided by the Commercial Operations and Support Savings Initiative (COSSI) Integrated Mechanical Diagnostics (IMD) program consists of an onboard processing unit, a ground based processor and server, and an enterprise database. The JAHUMS team is providing interface information to support development of technologies by an independent third party and substantial opportunities for technology insertion in both military and commercial HUMS.

OSJTF Mission

To champion the establishment of an open systems approach for the acquisition of all weapons systems.



Resources and Contacts

The OSJTF offers a wide range of resources to help facilitate implementation of open systems within DoD. Materials include:

- Workshops and training courses
- Technical presentations
- Informational packages and guidance documents
- Articles and reference materials
- Managerial and technical help

Visit our Web site at:

<http://www.acq.osd.mil/osjtf>

Or contact OSJTF at:

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When requesting information, be sure to include your name, organization, address, phone number, fax number, and E-mail address.

Open Systems Joint Task Force



Fielding affordable
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“For DoD to achieve a revolution in military and business affairs, we need to adopt innovative strategies like the open systems approach that will make it possible to lower life cycle costs, insert new technology as it becomes available and provide superior product to our forces. . . .” *Dr. Jacques S. Gansler*

The Open Systems Approach

Is a means to assess the feasibility of using widely supported commercial interface standards in developing systems. It is one of the tools that will help meet DoD's goals of modernizing weapons systems, developing and deploying new systems required for 21st century warfare, and supporting these systems over the total life cycle.

A New Way of Thinking...

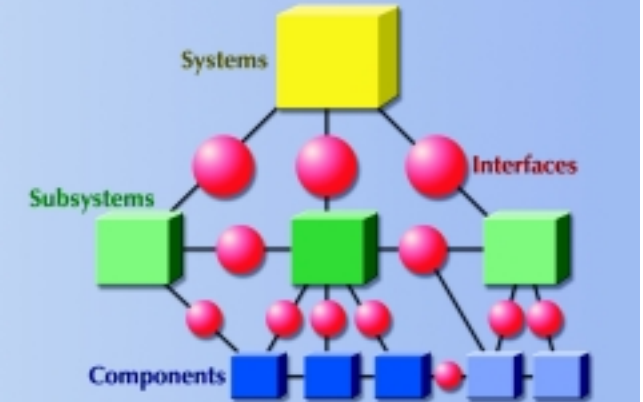
An open systems approach is an integrated technical and business strategy that defines key system or equipment interfaces by widely used consensus-based standards. The open systems strategy is an enabler to achieve these following objectives:

- Adapt to evolving requirements and threats;
- Promote transition from science and technology into acquisition and deployment;
- Facilitate systems integration;
- Leverage commercial investment;
- Reduce the development cycle time and total life-cycle cost;
- Ensure that the system will be fully interoperable with all the systems which it must interface, without major modification of existing components;
- Enhance commonality and reuse of components among systems;

- Enhance access to cutting edge technologies and products from multiple suppliers;
- Mitigate the risks associated with technology obsolescence;
- Mitigate risk of a single source of supply over the life of a system;
- Enhance life-cycle supportability; and
- Increase competition.

Focus on Interfaces

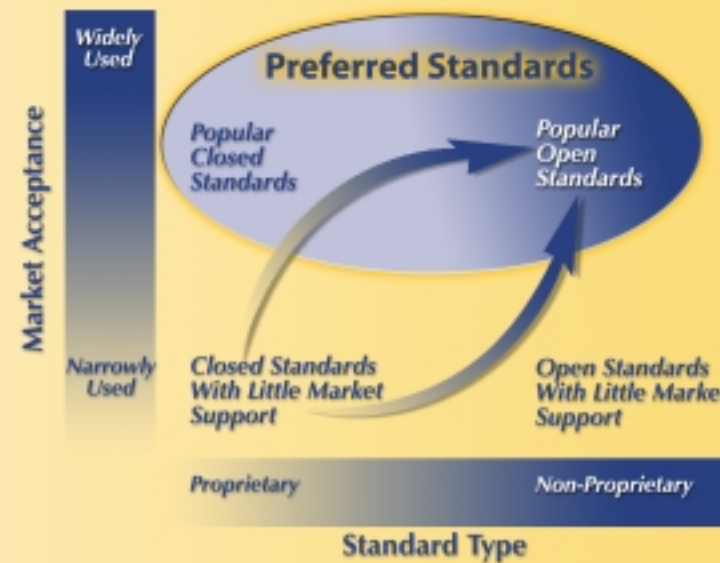
Interface standards specify the physical, functional, and operational relationships between various elements (hardware and software), to permit interchangeability, interconnection, compatibility and/or communications. The success of an open systems approach is based on the application of a disciplined systems engineering process and well defined open interfaces.



Open Interface Standards

Open specifications and standards are those that are widely used, consensus based, published and maintained by a recognized industrial standards organization. Standards should be selected based on maturity, market acceptance, and allowance for future technology insertion.

As part of the open systems approach, preferences should be given to the use of open interface standards first, then de facto interface standards, and finally government and proprietary interface standards.



DoD Policy

DoD 5000 series documents call for an open systems approach as an integral part of the overall acquisition strategy. Open systems contributes to rapid acquisition with demonstrated technology, evolutionary and conventional development, interoperability, life-cycle supportability, and incremental system upgrade without major redesign.

Benefits of Using Open Systems

A systems architecture based on open systems interface standards allows programs to leverage commercially-funded or developed technologies and to take advantage of increased competition. It also allows faster upgrade of legacy systems with less complexity and cost. Bottom line—superior systems can be fielded that are more affordable.